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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,061	12/28/2001	Christopher P. Ausschnitt	FIS9-2001-0254 us1	3269

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INTERNATIONAL BUSINESS MACHINES CORPORATION
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EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 03/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,061

Applicant(s)

AUSSCHNITT ET AL.

Examiner

Michael P. Stafira

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9 and 14-18 is/are rejected.
- 7) ☒ Claim(s) 4-6, 10-13, 19, 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirk ('486).

Claim 1

Kirk ('486) discloses providing a reticle (Fig. 5, Ref. 500) having a test pattern, said test pattern having a first feature (Fig. 5, Ref. 501) and a second feature (Fig. 5, Ref. 502), said first feature comprising a blazed grating capable of forming an asymmetric pattern of illumination energy passing there through, said asymmetric pattern rotationally oriented in a first direction (Col. 4-5, lines 66-6); exposing a photosensitive material to illumination energy passing through said first and second features to form a first feature image and a second feature image, respectively; measuring a relative location of said first feature image with respect to said second feature image; and computing a lens aberration parameter in accordance with said relative location (Col. 4, lines 53-61, Col. 6-7, lines 50-20).

Claim 2

The reference of Kirk ('486) further discloses exposing, said blazed grating projects a single beam (Col. 6-7, lines 50-20).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirk ('486) and in further view of Kouno et al. ('858).

Claim 3

Kirk ('486) substantially teaches the claimed invention except that it does not show a test pattern is a box-in-box pattern having inner and outer boxes. Kouno et al. ('858) shows that it is known to provide a test pattern that is box-in-box with inner and outer boxes (See Fig. 7) for measuring optical aberration in an optical system. It would have been obvious to combine the device of Kirk ('486) with the box-in-box of Kouno et al. ('858) for the purpose of providing a pattern that is able to measure smaller aberrations, therefore increasing the sensitivity of the measurement.

5. Claims 7,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirk ('486).

Claim 7

Kirk ('486) discloses providing a reticle (Fig. 5, Ref. 500) having a plurality of test patterns (Fig. 5, Ref. 501-505), each of said test patterns including and associated with a first feature and a second feature, each of said first features having a blazed grating, wherein each of said blazed gratings has an associated grating orientation different from the orientation of each of

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the others of said plurality of test patterns (Col. 4-5, lines 53-6); exposing a photosensitive material through said plurality of test patterns to form a plurality of test images, each of said test images having a first image formed from said first feature and an associated second image formed from said second feature of the associated test pattern (Col. 6, lines 50-62); measuring a relative location of said first image with respect to said associated second image within each of said plurality of test images to obtain a set of relative locations wherein each of said relative locations in said set is associated with a different grating orientation; and computing a lens aberration property in accordance with said set of relative locations (Col. 6-7, lines 50-20).

Claim 8

The reference of Kirk ('486) further discloses exposing, said blazed grating projects a single beam (Col. 6-7, lines 50-20).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirk ('486) and in further view of Kouno et al. ('858).

Claim 9

Kirk ('486) substantially teaches the claimed invention except that it does not show a test pattern is a box-in-box pattern having inner and outer boxes. Kouno et al. ('858) shows that it is known to provide a test pattern that is box-in-box with inner and outer boxes (See Fig. 7) for measuring optical aberration in an optical system. It would have been obvious to combine the device of Kirk ('486) with the box-in-box of Kouno et al. ('858) for the purpose of providing a pattern that is able to measure smaller aberrations, therefore increasing the sensitivity of the measurement.

7. Claims 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirk ('486).

Claim 14

Kirk ('486) discloses a test pattern (Fig. 5, Ref. 500) having a first feature and a second feature (Fig. 5, Ref. 501, 502), said first feature comprising a blazed grating capable of forming an asymmetric pattern of illumination energy passing there through and said asymmetric pattern rotationally oriented in a first direction (Col. 4-5, lines 41-6).

Claim 15

The reference of Kirk ('486) further discloses exposing; said blazed grating projects a single beam (Col. 6-7, lines 50-20).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirk ('486) and in further view of Kouno et al. ('858).

Claim 16

Kirk ('486) substantially teaches the claimed invention except that it does not show a test pattern is a box-in-box pattern having inner and outer boxes. Kouno et al. ('858) shows that it is known to provide a test pattern that is box-in-box with inner and outer boxes (See Fig. 7) for measuring optical aberration in an optical system. It would have been obvious to combine the device of Kirk ('486) with the box-in-box of Kouno et al. ('858) for the purpose of providing a pattern that is able to measure smaller aberrations, therefore increasing the sensitivity of the measurement.

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9. Claim 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirk ('486).

Claim 17

Kirk ('486) discloses a reticle (Fig. 5, Ref. 500) having a plurality of test patterns (Fig. 5, Ref. 501, 502), each of said test patterns including and associated with a first feature and a second feature, each of said first features comprising a blazed grating capable of forming an asymmetric pattern of illumination energy passing there through (Col. 4, lines 53-65), said asymmetric pattern having a rotational orientation different from the orientation of each of the other of said plurality of test patterns (Col. 4-5, lines 53-6).

10. Claims 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirk ('486) and in further view of Kouno et al. ('858).

Claim 18

Kirk ('486) substantially teaches the claimed invention except that it does not show a test pattern is a box-in-box pattern having inner and outer boxes. Kouno et al. ('858) shows that it is known to provide a test pattern that is box-in-box with inner and outer boxes (See Fig. 7) for measuring optical aberration in an optical system. It would have been obvious to combine the device of Kirk ('486) with the box-in-box of Kouno et al. ('858) for the purpose of providing a pattern that is able to measure smaller aberrations, therefore increasing the sensitivity of the measurement.

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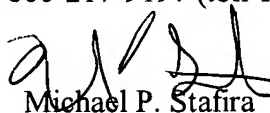
Allowable Subject Matter

11. Claims 4-6,10-13,19,20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael P. Stafira
Primary Examiner
Art Unit 2877

February 25, 2004